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Devonian epoch, migrated from Central Europe to America where they are now presented in the middle Devonian."

Dr. Katzer's study of these Brazilian fossils is especially interesting in connection with the work of Dr. Henry S. Williams on the fauna of the Cuboides Zone. (Bull. G. S. A. I. 481-500.)

JOHN C. BRANNER.

Report of the United States Deep Waterways Commission. By the Commissioners JAMES B. ANGELL, JOHN F. RUSSELL, LYMAN E. COOLEY. Washington, 1897.

The Deep Waterways Commission was appointed by the President in response to a joint resolution of Congress, introduced in February 1895, to make inquiry and report after conference with such similar Commissioners as might be appointed on behalf of Great Britain or the Dominion of Canada, concerning the feasibility of the construction of canals which will enable vessels engaged in ocean commerce to pass into the Great Lakes. The United States Commissioners and also those appointed by the Canadian government have devoted a year or more to the investigation and have prosecuted their inquiries with such thoroughness that their report contains much of value to geologists and hydrographers as well as the commercial world. It embraces 263 pages of descriptive and statistical matter and an elaborate series of maps, diagrams and profile sections.

Of interest to geologists and hydrographers are the tables and diagrams exhibiting the fluctuations in the levels of the Great Lakes and their outlets for each month from 1860 to 1895; a report and diagrams setting forth the effects of gales on Lake Erie; and an accurate map of the basin of the Great Lakes. The length of the ice season is treated with great fullness, there being 176 specific tables and five diagrams, covering not only the basin of the Great Lakes but much surrounding territory. The profiles setting forth the variations in depth of the several lakes with their connecting channels and of the St. Lawrence and Hudson rivers, give a clearer impression than can be obtained from charts. The great inequalities in depth found in the lower portions of the Hudson and St. Lawrence rivers are brought out with especial clearness, and they will stimulate inquiry into the history or mode of development of such abnormal stream beds.

The leading deductions from the work of the commission are as follows : First, that it is entirely feasible to construct canals between the several Great Lakes and the seaboard which will be adequate to any scale of navigation that may be desired ; second, the most eligible route from the heads of Lakes Michigan and Superior is through the several Great Lakes and their intermediate channels, together with a proposed ship canal from Tonewanda to Olcott in Lake Ontario, from which the Canadian seaboard may be reached by way of the St. Lawrence River, and the American seaboard may be reached by way of the St. Lawrence River, Lake Champlain, and the Hudson River, or by way of the Oswego-Oneida-Mohawk Valley, and the Hudson River. The direct line through Georgian Bay, Lake Nipissing, Mattawa, and Ottawa rivers, although presenting no great engineering difficulties, is not considered an available alternative to the route by way of Lake Erie, since the work of construction is much more serious, the water supply limited, the ice season longer, and the amount of traffic along the line much smaller. Until comprehensive surveys have been made it will be impossible to say how far lockage and restricted channels will offset the apparent saving in distance. F. L.

The Former Extension of the Appalachians across Mississippi, Louisiana and Texas. By PROFESSOR J. C. BRANNER. From the *American Journal of Science*, Vol. IV, November 1897.

The paper is a brief and compact statement of the ground upon which the author concludes that the Appalachian Mountains formerly had the extension indicated by the title. That the mountains disappeared by subsidence over the area named is evidenced by the following: (1) the reversal of the drainage of both the Arkansas and the Texas Carboniferous areas; (2) the truncation of the eastern part of the Ouachita uplift by Cretaceous and Tertiary sediments; (3) the general slope of the Ouachita uplift is toward the east; (4) the general direction of the drainage of the Ouachita uplift is toward the southeast, which is the direction of the principal axis of disturbance; (5) the faults and folds across the eastern end of the Boston Mountains are approximately parallel to the Cretaceous and Tertiary margin; (6) the great fault near the Tertiary border of Texas and the still greater faults in Alabama, with the downthrow (which is great) on the embayment side of